

Table 21. U.S. Methane Emissions from the Solid Waste of Domesticated Animals, 1990-2002

Animal Type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	P2002
Thousand Metric Tons Methane													
Cattle													
Beef Cattle.....	176	194	198	202	207	210	209	204	200	198	195	194	194
Dairy Cattle.....	553	556	559	594	631	662	695	732	738	743	758	772	766
Swine													
Market Swine.....	879	1,089	1,103	1,097	1,139	1,111	1,070	1,171	1,199	1,147	1,142	1,157	1,143
Breeding Swine.....	152	176	173	174	170	165	160	169	163	152	153	151	146
Poultry													
Layers	72	73	75	76	78	79	80	81	83	86	88	89	90
Broilers	69	73	76	85	90	94	96	99	100	103	98	99	101
Other Animals													
Sheep	5	2	2	2	2	2	1	1	1	1	1	1	1
Goats.....	1	1	1	1	1	1	1	1	1	1	1	1	1
Horses.....	27	27	27	28	28	28	28	28	28	29	27	27	27
Total	1,934	2,191	2,214	2,259	2,344	2,351	2,340	2,485	2,512	2,459	2,464	2,492	2,469
Thousand Metric Tons Carbon Dioxide Equivalent													
Cattle													
Beef Cattle.....	4,040	4,458	4,552	4,636	4,760	4,838	4,814	4,682	4,592	4,547	4,496	4,470	4,454
Dairy Cattle	12,717	12,790	12,849	13,665	14,502	15,236	15,992	16,829	16,970	17,092	17,430	17,746	17,614
Swine													
Market Swine.....	20,217	25,045	25,379	25,220	26,196	25,547	24,610	26,922	27,579	26,380	26,261	26,621	26,292
Breeding Swine.....	3,502	4,045	3,978	4,010	3,916	3,788	3,681	3,893	3,739	3,488	3,508	3,474	3,364
Poultry													
Layers	1,663	1,682	1,726	1,755	1,794	1,814	1,838	1,871	1,913	1,979	2,016	2,052	2,076
Broilers	1,590	1,671	1,749	1,966	2,059	2,158	2,199	2,266	2,298	2,372	2,255	2,284	2,313
Other Animals													
Sheep	115	44	42	40	39	35	33	31	31	28	28	27	26
Goats.....	20	21	21	20	19	18	17	17	16	15	14	13	13
Horses.....	625	628	631	633	636	638	641	643	646	654	657	628	630
Total	44,491	50,383	50,927	51,946	53,920	54,073	53,826	57,154	57,783	56,556	56,665	57,316	56,782

P = preliminary data.

Notes: Data in this table are revised from the data contained in the previous EIA report, *Emissions of Greenhouse Gases in the United States 2001*, DOE/EIA-0573(2001) (Washington, DC, December 2002). Totals may not equal sum of components due to independent rounding.

Sources: Population data for horses and goats extrapolated from U.S. Department of Commerce, Bureau of the Census, *Census of Agriculture*, 1982, 1987, 1992, and 1997. Population data for all other animals from U.S. Department of Agriculture, National Agricultural Statistics Service, Livestock, Dairy and Poultry Branch. Typical animal sizes from U.S. Environmental Protection Agency, Office of Air and Radiation, *Anthropogenic Methane Emissions in the United States: Estimates for 1990, Report to Congress* (Washington, DC, April 1993), p. 6-8; and U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2001*, EPA-430-R-03-004 (Washington, DC, April 2003), Table M-2, web site <http://yosemite.epa.gov/oar/globalwarming.nsf/content/ResourceCenterPublicationsGHGEmissionsUSEmissionsInventory2003.html>. Cattle sizes adjusted by annual slaughter weight from U.S. Department of Agriculture, National Agricultural Statistics Service, Livestock, Dairy and Poultry Branch. Maximum methane production, and waste management systems used from L.M. Safley, M.E. Casada, et al., *Global Methane Emissions from Livestock and Poultry Manure* (Washington, DC: U.S. Environmental Protection Agency, February 1992), pp. 24-27; U.S. Environmental Protection Agency, Cost Methodology Report for Beef and Dairy Animal Feeding Operations, EPA-821-R-01-019 (Washington, DC, January 2001), pp.1-13-1-14; and U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2001*, EPA-430-R-03-004 (Washington, DC, April 2003), Table M-2. General methane conversion factors from Intergovernmental Panel on Climate Change, *Greenhouse Gas Inventory Reference Manual: Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, Vol. 3 (Paris, France, 1997), p. 4.25, website www.ipcc.ch/pub/guide.htm. State methane conversion factors for dairy cattle from U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-1998*, EPA-236-R-00-001 (Washington, DC, April 2001); and U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2001*, EPA-430-R-03-004 (Washington, DC, April 2003), Table M-4.